HAWAII MEDICAL JOURNAL

VOLUME 4 MARCH-APRIL, 1945 NUMBER 4

Med. Lib.

THE HYPERVENTILATION SYNDROME

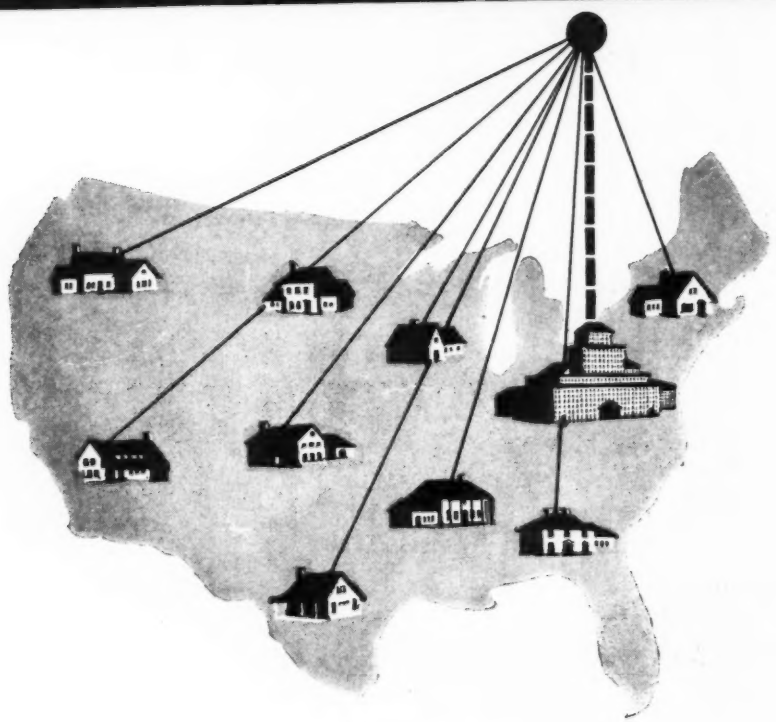
JAMES J. SHORT, COMMANDER MC, USNR

ERYTHROBLASTOSIS IN A CHINESE INFANT

I. L. TILDEN, M. D.
AND
WAH KAI CHANG, M. D.

ANNUAL MEETING, TERRITORIAL ASSOCIATION
MAY 4-5-6, 1945

9 out of 10 cases of EPILEPSY are treated in the home



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HAWAII MEDICAL JOURNAL

Volume 4
Number 4

MARCH-APRIL, 1945

$2.00 per yr.
35c per copy

Published Bi-monthly by

THE HAWAII TERRITORIAL MEDICAL ASSOCIATION

(Incorporated in 1856 under the Monarchy)

Mabel L. Smyth Memorial Building
510 S. Beretania St.
Honolulu, Hawaii, U. S. A.

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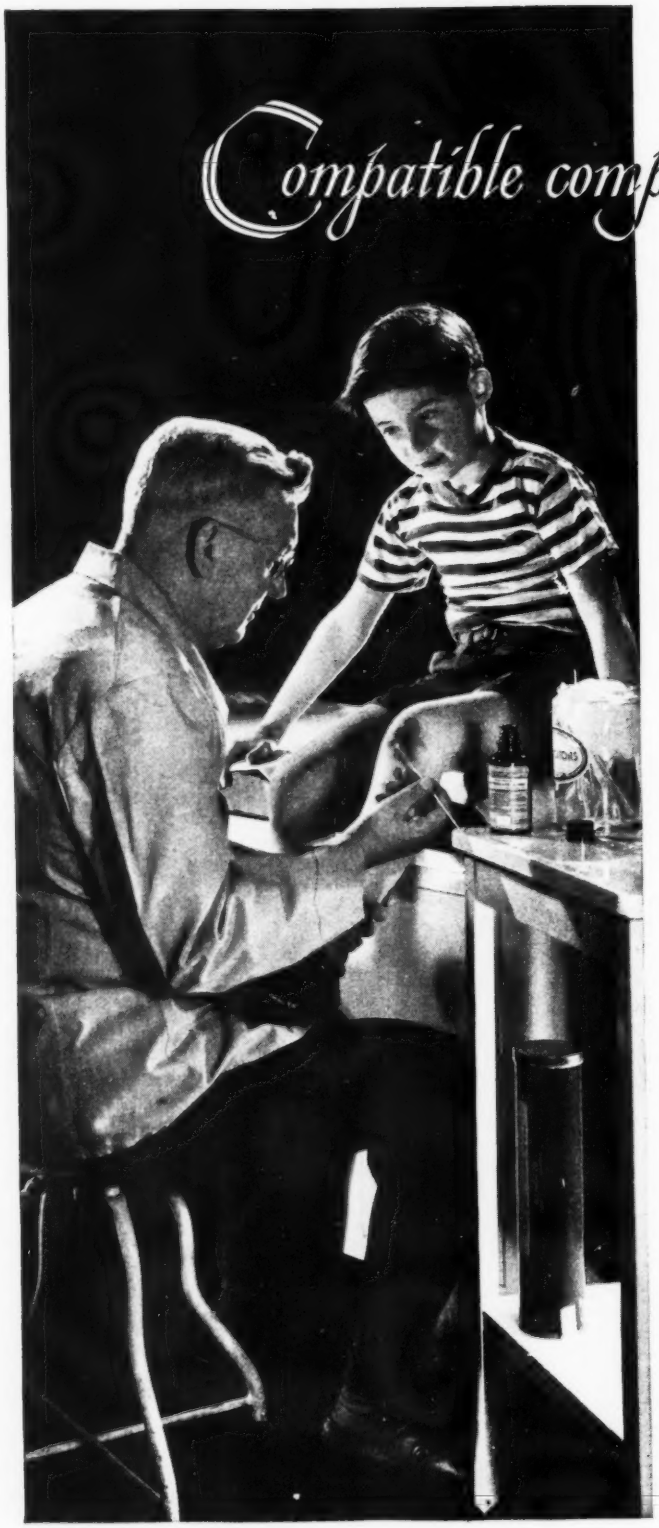

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The Hyperventilation Syndrome

COMMANDER JAMES J. SHORT, M.C., U.S.N.R.

If experience in the present war has taught us anything it has served to underscore the great importance of psychogenic factors in the etiology of disease. Psychosomatic medicine is becoming an important field of research. We have come to realize that organic diseases have many of their roots in anxieties, complexes,' psychoneuroses and all the mental and emotional states that flesh is heir to. Today we no longer give too much thought to a peptic ulcer—we treat the patient; in like manner we handle the hypertensives, for despite the promising work of Goldblatt on renal ischemia, the treatment of the psycho-neurogenic factors in most cases offers the best means of alleviating the arterial tension. One could argue with considerable plausibility that obesity, and possibly its offspring diabetes, have part of their origin in an underlying psychoneurosis, and it wouldn't be difficult to convince the most skeptical that even the venereal diseases occasionally stem from an emotional imbalance.

The human organism can no longer be departmentalized and its emotional experiences shrugged off as irrelevant. We must consider it and treat it as a whole. At present we are groping blindly but hopefully toward a better understanding of the underlying mechanisms by which fear, rage, pain and less acutely—but none the less certainly—the anxieties produce not only disorders of function but also even histological change as well.

Biochemistry, endocrinology, psychiatry and general physiology are all involved. The specialists in all fields must become interested in these subjects if rapid strides are to be made.

Much credit is due Cannon, Dale, Crile, Draper, Van Slyke, Alvarez, Kerr, Henderson, Haldane, and many others who have pioneered in various fields and have pointed the way.

As a result of the emotional stresses associated with war we have a vast reservoir of material for the study of psychosomatic disorders. For unknown reasons not all persons react in the same manner to identical conditions. For example, one may develop a peptic ulcer; another, a cardiac neurosis; and another, intractable vomiting. Conditioned reflexes play a part in some, probably the result of early experiences when behavioristic patterns are being laid down. In others, the inhibitory and controlling influences of the higher cerebral centers lose their grip and the explosive centers of the hypothalamic and other subcortical areas have sway. The *metabolic* manifestations that can be produced by disturbance of the subcortical areas were studied long ago by Claude Bernard. A review of his classic studies is still a profitable and entertaining pastime.

But although it might be of interest to make a general survey of the subject of psychosomatic medicine, I have been asked to discuss one definite subject which falls within this category. This has come to be known as the "hyperventilation syndrome," for the recognition of which I believe Kerr is more or less responsible.

SYMPTOMS

This condition was fairly common in our experience with troops both on the mainland and at a base hospital in the South Pacific Area. It occurred not only following combat experience but also among those who had never been engaged. The symptoms followed a rather consistent pattern: undue fatigue, weakness, dizziness, palpitation, insomnia, paresthesias of hands, face and feet; pain around the heart sometimes radiating to the shoulders and arms; other vague pains in the skeletal muscles; tremors; not infrequently muscle cramps or localized spasms; and last, but of special significance, shortness of breath. We saw no convulsive seizures attributable to hyperventilation, though these are known to occur. All or only part of these symptoms may be present in any individual. Most common are the weakness, dizziness, fatigue and palpitation.

PHYSICAL AND NEURO-PSYCHIATRIC FINDINGS

These patients appeared to be genuinely distressed in mind and body. Their immediate and obvious anxiety usually concerned their physical symptoms. Physical examination usually revealed tachycardia with regular rhythm, an overacting heart suggestive of hyperthyroidism, tremors of hands, thready pulse, undue sweating with cold, clammy extremities, hyperreflexia with evidence of general tenseness, normal blood pressure and negative eye signs. Malnutrition was fairly common, and one gained the impression of general physical inadequacy. Cases secretly observed were frequently seen to be continuously overbreathing either by increased rate or depth of respiration or both. A further slight voluntary increase of respiration was often sufficient to evoke severe symptoms.

Neuro-psychiatric findings were variable. There was often frank evidence of anxiety and patients were frequently labeled emotionally unstable. How-

Read before the Post Graduate Session of the Honolulu County Medical Society, January 8, 1945. Approved for publication. The opinions and views set forth in this article are those of the writer and are not to be considered as reflecting the policies of the Navy Department.

ever, attemps to obtain a history of lifelong emotional instability were often unavailing since the observed episodes were the first experienced. Although attempts to get at the underlying psychic and emotional factors in a given case were not always successful, there was plenty of evidence of tenseness, anxiety and general apprehensiveness. Perhaps narco-analysis, now so widely employed, would have proved more successful in certain cases where the primary cause was buried deep in the sub-conscious; this procedure was not used in these cases as time for a complete neuropsychiatric study was often insufficient. In certain other cases the underlying anxiety was fairly obvious and easily recognized by the patient. Domestic worries appeared to be a fairly frequent feature. Combat experience, although often reported as a cause of general nervous disintegration, was not a feature of our cases of hyperventilation, nor do I recall having seen it mentioned in connection with this syndrome.

LABORATORY FINDINGS

Routine laboratory tests were generally negative. The basal metabolic rate was normal.

GENERAL DISCUSSION

That hyperventilation alone can cause many of the foregoing symptoms will be obvious to anyone who has sufficient curiosity to act as a guinea pig. Several of us who did so testified to the great discomfort experienced. Great determination is necessary to maintain deep breathing at a rate of 20 respirations per minute for fifteen minutes. At the end of ten minutes or earlier, the hands begin to tingle and the facial muscles become numb and cramped. Later, carpo-pedal spasm ensues. The pulse rate increases, and pains in the cardiac area may or may not be experienced. Cramps in the leg muscles are not uncommon; and a most unpleasant aftermath, personally experienced, is renal colic. A diuresis, with an alkaline tide and phosphaturia, occurs rather promptly after the experience, and the renal colic may persist over several hours with pain in the back and bladder. In our observations on normal cases the blood pressure changes did not follow any particular pattern.

What is the mechanism by which hyperpnea is maintained in these cases of chronic spontaneous hyperventilation? Why does apnea not result as it does after voluntary forced breathing? What derangements ensue? How shall we treat the condition? What is the prognosis?

I have tried to put together the jig-saw puzzle, but I must admit that many questions are still obscure in my own mind and I believe that more investigation is called for.

In the first place it is fairly well established that in these cases we have first an underlying anxiety or similar emotional state. This excited condition produces a persistent hyperventilation with resultant unpleasant symptoms. In strongly emotional states—fear and rage, for example—adrenalin is liberated into the blood stream as a result of, and as a support to, sympathetic nervous system stimulation. An adrenalin-like substance, sympathin, is also produced at the neuro-muscular junctions. This excitation of the sympathetico-adrenal system is to enable the organism to take appropriate action in emergencies and to produce increased muscular power and energy for such purpose. Just how many of the symptoms of the syndrome under consideration are directly due to sympathetico-adrenal stimulation, I do not know, but am inclined for the present to believe, that in the more sustained emotional state associated with hyperventilation, the symptoms are chiefly attribuable to the hyperventilation *per se*.

How is hyperventilation brought about and maintained over long periods? The mechanism of respiratory control is rather complex. Increase in arterial concentration of carbon dioxide is a powerful stimulus to the respiratory center; anoxemia, even without increase of carbon dioxide, may produce a reflex stimulation of this center through the carotid bodies; and powerful stimulation of it is obtained from the muscles during muscular activity, either reflexly or, as Henderson believes, from the production of a substance which he calls hyperpnein. Certainly the conditions of anoxia or muscular activity are not present in the hyperventilation syndrome. In this condition undue ventilation reduces the normal carbon dioxide concentration, but apnea fails to occur. These patients hyperventilate even when lying quietly in bed. One naturally thinks of an alteration in the respiratory center which renders it more senstive to low tensions of carbon dioxide. Physiologists tell us that stimulation of the center may result from cerebral impulses directly or through the hypothalamus; Henderson states that emotion may render the respiratory center more sensitive to carbon dioxide. So we have a simple explanation for hyperventilation over long periods despite profound alterations in body chemistry and function, and the production of profound and distressing symptoms.

Hyperventilation may reduce the alveolar carbon dioxide to as little as 50 per cent of the normal concentration. This results in a systematic alkalosis, not from an absolute excess of alkali, but from a disturbance of the normal carbonic-acid–bicarbonate ratio.

CHART 1. *Modification of Van Slyke's original chart to show the possible relationships between pH and alkali reserve (the latter expressed as the CO_2 combining power of the plasma).*

MAXIMUM TOLERATED pH RANGE

ALKALI RESERVE EXPRESSED AS CO_2 COMBINING POWER OF PLASMA	7.8 7.7 7.6	7.5 7.4 7.3	7.2 7.1 7.0
100	1. UNCOMPENSATED ALKALI EXCESS (EXCESSIVE ALKALI INTAKE)	4. COMPENSATED ALKALI OR CO_2 EXCESS	7. UNCOMPENSATED CO_2 EXCESS (EMPHYSEMA, MORPHINE POISONING, ASTHMA ETC.)
90			
80	2.	5. NORMAL	8.
70			
60		ACID-BASE	
50		BALANCE	
40	3. UNCOMPENSATED CO_2 DEFICIT (HYPERVENTILATION)	6. COMPENSATED ALKALI OR CO_2 DEFICIT	9. UNCOMPENSATED ALKALI DEFICIT (DIABETIC OR NEPHRITIC ACIDOSIS
30			
20			

This ratio, which normally is 1 to 20, is very carefully maintained. To maintain this relationship in the presence of a deficit of carbon dioxide the body attempts to withdraw bicarbonate from the blood. If the bicarbonate is withdrawn with sufficient rapidity the normal ratio is maintained and a *compensated* carbon dioxide deficit results, with normal pH but diminished plasma bicarbonate ("acarbia"). If bicarbonate is *not* withdrawn with sufficient speed its preponderance produces an increased PH. Alkaline phosphates are eliminated in the urine, and account for the alkaline tide following deep breathing. Bicarbonate is withdrawn to the tissues, though the major portion of it combines with hemoglobin. A markedly increased pH, even to a value of 7.9, has been reported as the immediate result of strenuous experimental overventilation. Presumably lesser degrees obtain in the syndrome under discussion. Incidentally, the increased alkalinity of the hemoglobin inhibits its oxygen carrying capacity, so that, paradoxically, one may encounter cyanosis from reduced hemoglobin even in the presence of excessive oxygen to the lungs. Such a cyanosis will be described later.

Increased pH (alkalosis) produces tetany, which is merely a term for increased neuro-muscular irritability.

How does tetany from alkalosis differ from that due to calcium deficiency? Is there any relation between the two?

Symptomatically they are identical. If we attempt to explain the tetany of alkalosis on the basis of a disturbance in the calcium ion we get off a bit into the realm of speculation, but this much is known: There is in hyperventilation alkalosis no reduction in the normal value of 9–11 mg. per cent of serum calcium; normally 50 per cent of this value is diffusible and in the ionized form. It is this diffusible, ionizable fraction that is thought to be physiologically active and effective in maintaining normal neuromuscular excitability. Although the evidence is not complete, there is reason to believe that *ionized* calcium is reduced in alkalosis, and that tetany is thus produced.

If this explanation is correct, can the cardiac symptoms of hyperventilation and possibly also of "neurocirculatory asthenia" be explained on this basis?

Experimentally, in the presence of sodium, a proper balance between calcium and potassium ions is necessary to maintain normal tone and function of cardiac muscle. A relative increase in the calcium ion causes cardiac arrest in systole ("calcium rigor"). A relative increase in the potassium ion causes the opposite effect, *i.e.,* cardiac arrest in diastole ("potassium inhibition"). Thus a diminution in the calcium ion, producing a relative excess of potassium, may be a factor in this condition. We should remember however that the clinical manifestations of so-called neuro-circulatory asthenia ("effort syndrome," "irritable heart," "disordered action of the heart" ["DAH" of Sir Thomas Lewis], "soldier's heart," "cardiac neurosis") are not confined to the heart, but are so similar to those of hyperventilation as to lead many to believe that they are part and parcel of the same clinical picture. The main question, it seems to me, is how much of a role, if any, is played by overbreathing in the production of so-called neuro-circulatory asthenia. It is my personal opinion that the two conditions are essentially identical. A reliable test for hyperventilation is needed.

ATTEMPT TO DEVISE TEST FOR HYPERVENTILATION

By means of a gas flow meter and a gas mask an attempt has been made to determine normal standards for volume of breathing. If comparisons between individuals are to be made it is obvious that volume per minute must be related to some comparable unit, such as the surface area, as is done in the test for basal metabolic rate. Basal conditions should obtain and perhaps the BMR itself should be taken into consideration. However it is probable that for practical purposes a normal BMR could be assumed, for within the usual limits of normal variation it is doubtful if a significant factor would be introduced.

A few preliminary studies were made on two normal subjects. The tests were terminated because of unsuitable apparatus. Neither subject was under basal conditions, as each had had breakfast about two hours previously. After a rest period of about fifteen minutes one subject was found to ventilate at rest at

the rate of 4.4 liters per sq. meter per minute, the other at 3.26 liters. Hyperventilation to three times this volume for five minutes produced a sensation of giddiness in one subject; but at this point the experiment was terminated because the apparatus offered too great resistance to forced breathing, which condition would increase carbon dioxide production and thus vitiate the result.

These observations, though of no great value in themselves, are offered to indicate the type of test which in my opinion should be devised to aid in the study of hyperventilation patients. Uncontrolled breathing to test the reaction of such cases, as has been described in the literature, is of little value without normal standards for comparison, since everyone will show distressing symptoms if he overventilates long enough. The differentiation of a normal person from a chronic overbreather is merely a matter of the degree of increased breathing necessary to produce acute symptoms. An example of the symptoms produced by forced breathing is as follows:

SIGNS AND SYMPTOMS FROM VOLUNTARY HYPERPNEA

A normal hospital corpsman, aged 20, volunteered to act as subject. He was given a short period of rest in recumbency before the test. Preliminary examination showed his height to be 73 inches, his weight 168 lbs. His personality was calm and apparently phlegmatic. Pulse rate at rest was 52, regular; blood pressure 120/68; knee jerks equal but diminshed; general physique was of the athletic type.

TABLE 1. *Observations during voluntary hyperventilation.*

TIME	P.	BP.	REMARKS
(min. after HV.)	52	120/68	HV. begun.
2	72	126/66	Face flushed. No symptoms.
4	72	124/66	
7			Slight tingling of fingers.
8	68	124/74	Lightheadedness.
11	68	120/68	Small pulse volume.
12			Numbness around mouth. Hands numb and tingling. Arms weak.
13	72	122/68	Severe numbness of face. Slight cramping of hands. Tight sensation back of ears. Face extremely flushed.
18	76	128/66	Hands cold. Palms clammy. Pain over precordium.
20			Tightness in upper abdomen and lower chest, spasms of hands.
22	80	120/62	Severe constriction in chest. Pulse weak, thready. Pain down right arm.
24			HV. stopped because of severe symptoms. Very weak and prostrated.
27			Trousseau's sign positive. Hands and legs cramping. Vision blurred. Marked tremors of hands. Appears very distressed.
28			Face and hands very cyanotic. Long periods of apnea. Too weak to stand.
30			Symptoms diminishing. Cramps persist in upper extremities.
33			Still very weak.
35			Able to arise. Very tremulous.

Rate of respiration varied from 16 to 20 except for the last few minutes when it rose to about 30. It is estimated that about three to six times the normal volume of air passed through the lungs.

INTERPRETATION

Yandell Henderson by direct manometric measurements has shown that tonus of skeletal muscles falls markedly during acapnia (carbon dioxide deficit). He emphasizes that the importance of this factor has not been sufficiently recognized in clinical medicine. Return of blood to the right heart depends upon general muscle tonus more than on any other one factor. Any influence which lowers this tonus interferes with venous return and lowers cardiac output. Blood pressure may fall in extreme instances, but vasoconstriction tends to offset this tendency. Coldness of the extremities and a small thready pulse, as seen in the described subject, is evidence of such compensation.

The assumption of collapse of the vaso-motor system in so-called shock is probably fallacious. Failure of general muscle tonus with consequent lowering of intra-tissue pressure and blood stagnation is an explanation which probably fits the observed conditions much more satisfactorily. In addition to acapnia (carbon dioxide deficit), emotional reactions, concussions, surgical procedures, anesthesia, etc., may also be factors in producing atonia. According to Henderson the occasional shock-like state seen as a result of spinal anesthesia is due to the anesthetic's having penetrated to the motor centers. Paralysis with loss of tonus of certain areas is the result.

The vasomotor nervous system exerts a strong direct influence on arterial pressure but relatively little on venous return. Carbon dioxide, on the contrary, exerts relatively little direct influence on arterial pressure, but a powerful influence on venous return. If hypotonic failure of the circulation ("shock") is due to failure of venous return, the failure is not in the vasomotor nervous system. Henderson suggests that a better term for traumatic and surgical shock would be hypotonia.

Thus, the respiratory center exerts an indirect but powerful control over the venopressor mechanism. Every muscle in the body is influenced by its degree of excitability.

The literature from time to time has contained warnings against the common practice of treating shock with external heat. Such a procedure is thought to defeat nature's attempt by vasoconstriction to compensate for a condition of diminished cardiac output and lowered circulating blood volume. It is also thought to aggravate an already existing tissue anoxia by elevating the metabolism and thereby increasing the demand for oxygen.

The lowered muscle tonus which accompanies a carbon dioxide deficit produces a vicious circle. Acapnia may be enhanced by lowered muscle tonus since diminished oxidation necessarily results in impaired

carbon dioxide production. Carbon dioxide is urgently needed to break the cycle.

TREATMENT

How shall we treat these patients? The answer is simple, the accomplishment difficult and often disappointing. If, as proposed by Kerr and generally recognized, an anxiety or other emotional state underlies these physical manifestations, the obvious thing is to remove the anxiety. The psycho-therapeutic approach is indicated; but to date psychotherapy has not, in my experience, produced the results hoped for. This however does not invalidate psychotherapy, which is the rational procedure. Our failure was probably due to insufficient time and effort to effect neuro-psychiatric rehabilitation.

The intravenous injection of calcium is attended with dramatic relief, though not with permanent success. This is attributed to the presence of an increase in the calcium *ion*, not to an increase of *total* calcium. The effect however is transitory. Ammonium chloride is highly recommended by Kerr, in a dosage of 1 gram 3 to 6 times a day. Although this is designed, and might be expected, to restore the plasma pH to normal and thus increase calcium ionization, clinical results in our hands were not remarkable. Inhalation of an oxygen-carbon dioxide mixture, 70 parts to 30, afforded prompt relief in Kerr's cases; and rebreathing of expired air accomplishes the same purpose. These three procedures are largely palliative. They do, however, have the advantage of demonstrating to the patient the immediate cause of his unpleasant symptoms, and thus enlisting his cooperation in the attempt to break the cycle. But chief reliance must be placed on the attempt to understand and eliminate the emotional state.

Drugs, however, may come to play a major part in rehabilitation. Heath and Powdermaker recently reported that ergotamine tartrate parenterally restored normal physiologic function to patients long suffering from so-called "battle reaction" ("shell shock" of World War I). Ergotamine is a sympatholytic drug and can successfully neutralize the effect of adrenalin. After months of incapacitation their reported cases were successfully returned to combat duty once the autonomic nervous system was controlled. These authors make a distinction between "battle reaction" and psychoneurosis. They regard the former merely as an exaggeration of the normal reaction of the sympathetic system to fear, and find no evidence of psychoneurosis in many cases. Relief of the sympathetic drive quickly restores the patient in their experience.

This recalls some personal experiments with adrenalin. A few minutes after its administration to an intelligent but non-medical normal subject, I asked him how he felt. His reply was that he felt as if he had been scared to death.

I have not tried ergotamine in the treatment of hyperventilation but I believe it worth a thorough trial in the light of the experience of Heath and Powdermaker.

CONCLUSIONS

The clinical condition which has been labeled "hyperventilation syndrome" demands more study. Some painstaking laboratory work is first in order. Many of our conclusions are based on experiments with normal subjects. Are the alveolar carbon dioxide and plasma bicarbonate really reduced in these patients? Is the plasma pH increased, or so near the borderline that it can be increased with little effort? Is the ionized calcium really diminished? Can we devise a good clinical breathing test with normal standards—a breathing tolerance test? The present tests are crude and not sufficiently standardized. Other questions suggest themselves.

Thus it is that every advanced step raises new horizons; but that is what makes medicine so fascinating.

DISCUSSION

COMDR. FERDINAND FETTER, M.C., U.S.N.R.: First, I want to congratulate Dr. Short on an excellent paper on a subject that is little discussed and not well understood. This paper goes a long way toward clarifying the subject, which is extremely important in military medicine, as Dr. Short pointed out. Illustrating this further, Carryer[1] of the Mayo Clinic has said in a recent paper that medical officers with whom he talked considered that the hyperventilation syndrome was one of the most commonly missed medical diagnoses in the armed forces, and I know the diagnosis is often missed in civilian practice, too.

In the past, this condition has interested the experimental physiologist rather than the clinician. Knowledge of and interest in this symptom complex as a clinical entity is, I believe, of fairly recent origin. As Dr. Short has indicated, it is a psychosomatic disease, with symptoms referable to the respiratory system, and comparable therefore to nervous indigestion and spastic colon, say, in the gastrointesinal tract, and functional heart disease. Considering the general lay knowledge of the relation and the effect of the emotions on respiration, it is surprising that more attention has not been paid to functional respiratory disease. With the increase in psychosomatic disease in the services, more and more cases of this syndrome will be seen if they are looked for. As Dr. Short has pointed out, combat duty is not necessary for its development. I have seen a fair number of cases among Marine recruits at boot camp.

Stead and Warren[2] of Emory University in Atlanta have advised doctors to observe the effects of voluntary hyperventilation in all patients complaining of faintness, giddiness, light-headedness, and "black-outs." In a large number of such cases, the patient's symptoms will be reproduced by one to two minutes of voluntary hyperventilation. As treatment, at least in milder cases, these authors believe that demonstration of the cause of the symptoms is often sufficient. Other treatments for an attack include advising the patient to hold his breath, or to rebreathe into a paper bag. Of course, as Dr. Short has said, more intensive psychotherapy is needed in many cases.

This syndrome is also important in aviation medicine. Hinshaw and Boothby[3] of the Mayo Clinic have discussed this aspect of the disease. In general, they believe that many accidents due to so-called pilot error are the result of this syndrome, which develops under conditions of stress, such as bad flying weather, in ordinarily stable pilots. Hinshaw has given an interesting account of his own experiences

with it in one of his earliest solo flights as a student pilot. When attempting to calculate the landing maneuver in turbulent air, he began to feel faint, weak, dizzy and anxious. He said he was obviously frightened, but when a sense of tingling and numbness of his fingers appeared, he realized he was hyperventilating. Although familiar with the clinical syndrome, he had never experienced it previously while flying. A few minutes of controlled respiration gave complete relief, and he made a satisfactory landing.

The relation of the hyperventilation syndrome to neurocirculatory asthenia is an interesting question. Dr. Short believes the conditions are essentially identical. He may well be right, but I think, and I am sure he will agree, that more study and observation of these patients is necessary before a final answer can be given. I think there is no doubt that in many cases, neurocirculatory asthenia is due to hyperventilation. Carryer[1], who agrees with Dr. Short, reported that hyperventilation was present in 80 per cent of a large series of cases of neurocirculatory asthenia. For practical purposes, especially as far as the treatment of neurocirculatory asthenia goes, we should all remember that involuntary hyperventilation is often responsible for its symptoms.

I was very much interested in Dr. Short's account of the symptoms produced by twenty-four minutes of voluntary hyperventilation. I think he did well to find such a cooperative hospital corpsman, but I still wonder how he got him to continue hyperventilating so long. Dr. Short told me that he himself had hyperventilated for a few minutes to find out what it was all about, but I notice that he stopped after a few minutes, not twenty-four. But I am sure that I would have, too.

Again, I want to say that I think this has been a very illuminating paper on a little discussed but extremely important subject.

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Acute Yellow Atrophy Caused by Sulfathiazole

Report of Case

Henry C. Gotshalk, M.D.

Honolulu

The fact that the sulfonamide drugs can cause liver damage has long been known. Long and Bliss[1] and Hageman and Blake[2] in 1937 showed that acute toxic hepatitis with decrease in liver function was one of the toxic manifestations of these drugs. In 1938 Cline[3] reported a case of acute yellow atrophy of the liver following use of sulfanilamide. Since that time R. Ottenberg[4] and Berger and Applebaum[5] have reported similar cases.

In this case the patient continued to take sulfathiazole of her own volition after toxic hepatitis developed, which explains the severe liver damage.

Case Report

A Caucasian woman, age 45, was admitted to The Queen's Hospital City and County Medical Service in a comatose condition on December 14, 1942. Her history, which we obtained at a later date, was as follows: The patient had consulted her private physician on September 12, 1942 for treatment of a vaginal discharge. This discharge proved to be due to a Neisserian infection. She was treated with sulfathiazole for two weeks with excellent improvement. However, two weeks later her smears were again positive and she was admitted to a Honolulu hospital for further treatment. While there she received another course of sulfathiazole with good results. The patient was discharged from this hospital the latter part of October 1942. Of her own volition, she continued to take six 7.7 grain (0.5 gram) sulfathiazole tablets daily, as a precaution against a relapse. Sometime in mid-November 1942 she noticed that her skin was definitely yellow. In spite of this she continued taking sulfathiazole until two days before her admission to The Queen's Hospital. From the time she was discharged from the other Honolulu hospital until her admission to The Queen's Hospital she had taken one hundred fifty 7.7 grain tablets of sulfathiazole (six daily). During this period she had had no medical supervision.

Physical examination on admission showed a well nourished, middle aged woman, deeply jaundiced and semicomatose. The pupils reacted poorly to light. The sclerae were intensely icteric. The teeth showed moderate alveolar pyorrhea. The gums were swollen and spongy and exuded blood. Chest was normal except for a few rales at the right base. The heart was rapid but regular and the blood pressure was 130/80. Abdomen was normal, except for absence of any liver dullness. Extremities, and a cursory neurological examination, were normal. Patient was incontinent of urine and feces, both containing gross evidence of bile. A tentative diagnosis of acute yellow atrophy of the liver was made.

On December 14, 1942, patient was given 1000 cc. of 10 per cent glucose intravenously. A few hours following this she became rational. She remained in fairly good condition for two days, when she again became comatose. From this point on, her condition gradually worsened. Her abdomen became distended, a moderate ascites developed and she became wildly delirious. She died on December 22, 1942.

Treatment consisted of 1000 cc. 10 per cent glucose in normal saline twice daily, dependent on the amount of nourishment taken by mouth. Vitamin K was given hypodermically, 3 mg. twice daily, with a high casein protein diet and Decholin grains 3¾ three times a day after meals. Pantopon grain ⅓ was used as a sedative.

Both cervical and urethral smears were negative for gonococci. The Wassermann and Kahn tests were both negative. The blood chemistry showed an N.P.N. of 27, creatinine 1.3 mg. per cent and a blood sugar of 85 mg. per cent. Icterus index was 150. The Van den Bergh showed an immediate direct reaction. Indirect reaction was 15 mg. per cent. The hemoglobin was 97.8 per cent, and the red blood count was 4,360,000. The white blood count was 10,650, with a differential of 83 per cent polys, 15 per cent lymphocytes, 1 per cent eosinophiles and 1 per cent basophiles. The prothrombin level was 30 per cent of normal. A bromsulfalein test showed 80 per cent dye retained at five minutes and 80 per cent of the dye retained at thirty minutes. The urine analysis showed specific gravity 1.020, albumin one plus, bile positive, and sulfathiazole crystals present.

Autopsy Findings

The body was that of a well developed and well nourished, deeply jaundiced, middle aged white woman.

Thoracic viscera were of normal size, shape and position.

The heart was flabby in consistency, but otherwise normal.

The abdominal cavity contained approximately 3000 cc. of clear yellow fluid. The mesentery and peritoneum were moderately edematous. The abdominal viscera grossly appeared to be of normal size, shape and position except that the liver was markedly reduced in size.

The liver weighed but 620 grams. The surface was somewhat wrinkled over the left half. The right half of the liver was smooth. The edge was somewhat rounded. It was pale, yellowish brown in color and cut with increased resistance. There were many areas of yellow atrophy and the entire parenchyma was marked by the presence of multiple petechial hemorrhages. The entire organ was bile stained.

The gall bladder was small and collapsed, and contained only a small amount of viscid yellow liquid.

The spleen weighed 130 grams. The surface was colored slate gray and was mottled by small areas of pale reddish gray.

There was no enlargement of any of the readily accessible lymph nodes.

The right and left kidneys weighed 140 and 150 grams respectively. They were imbedded in a moderate amount of perirenal adipose tissue. The capsules stripped readily and revealed a uniformly smooth bile-stained parenchyma. They were firm in consistency and on section showed a bile-stained stroma which revealed multiple petechial hemorrhages. There was no narrowing of the cortex and there was a normal relationship between cortex and medulla.

The pelvis and ureters were normal.

The bladder wall was of average thickness and was lined by a pink mucosa which showed evidence of early trabeculation.

Both ovaries were enmeshed within fibrous adhesive bands which sealed the abdominal ostia of the fallopian tubes. The peritoneum covering the ovaries was moderately thickened.

There were multiple violin-string adhesions involving both fallopian tubes. Both abdominal ostia were sealed by dense fibrous adhesions and fimbriae were not evident. The tubes were markedly distended by the presence of thick chocolate-colored liquid. Their appearance was not incompatible with an endometriosis of the fallopian tubes.

The uterus was symmetrical and showed no appreciable abnormalities except for some small cysts in the cervix.

The gastro-intestinal tract was grossly normal.

The brain weighed 1310 grams. There were no gross abnormalities evident.

Microscopic Findings

The essential positive findings were as follows: The fallopian tubes were dilated and filled with necrotic exudate. The walls showed a definite well marked chronic inflammatory reaction.

Both kidneys showed almost complete necrosis of the tubular epithelium and slight edema of the glomeruli, but no evidence of any cellular infiltration and no proliferative lesions.

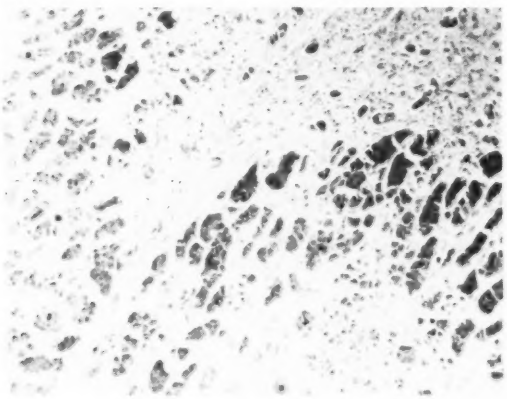

Fig. 1. Section showing distortion of liver lobules with areas of necrosis.

The liver showed an acute toxic necrosis, with complete distortion of the architecture and a breaking up of the liver lobules and cord. There was a slight degree of monocytic infiltration present (fig. 1).

DISCUSSION

Most clinicians who have used the soluble sulfonamides for emergency intravenous use have occasionally had the experience of seeing a transient icterus develop. This condition usually clears in four or five days following cessation of use of the drug. It is interesting to note in a recent article by Murphy, Kuzma, Polley and Grill[6], in which clinico-pathologic studies were made of renal changes caused by sulfonamide compounds, that toxic liver damage was also a prominent feature. In this case the liver damage was outstanding but the renal tubular damage was quite significant. This change was similar to one phase of renal damage described by these authors.

CONCLUSIONS

A case of acute yellow atrophy of the liver due to prolonged use of sulfathiazole is reported.

The author is indebted to Dr. A. Sumner Price for assistance in preparation of pathologic material. Dr. I. L. Tilden made the photomicrograph.

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Influenzal Meningitis

CASE REPORT

MAJOR JOSEPH G. CUTLER, M.C., A.U.S.
AND
CAPTAIN JACK M. PARTAIN, M.C., A.U.S.

Aleman[1], in 1940, after a review of 478 cases of influenzal meningitis in patients under the age of two, compiled statistics showing a mortality rate of 97 per cent. Fothergill[2] in 1937 reported a mortality rate of 84.6 per cent in which influenza antitoxin in horse serum was used in approximately 200 patients. Results in the hands of other workers using the same scheme of therapy, however, have been extremely variable, with percentages ranging from 50 to 100 per cent.

Experience has shown that the type B influenza strain is concerned in virtually all serious influenza infections in childhood. Cognizant of this and the similar biological characteristics that exist between the pneumococcus and hemophilus influenzae organisms, Alexander[3] developed a type-specific rabbit serum, the protective element of which was the anti-carbohydrate antibody. Furthermore, the antibody could be quantitated in terms of milligrams of immune nitrogen per cubic centimeter. She advocated its use early in the disease, either intravenously alone or intravenously and intrathecally. The combined use of sulfonamides, preferably sulfadiazine, and type-specific influenzal rabbit serum has made possible a much more optimistic outcome in the treatment of this disease. A report such as that of Boisvert, Fousek and Grossman[4], with a mortality rate of 15 per cent in 26 cases employing present therapeutic advances, is not uncommon. It is of interest too that these same workers employed intramuscular administration of the serum with results as efficacious as with the intravenous route.

The following is the report of a case of influenzal meningitis in a 12-month-old infant with recovery.

REPORT OF CASE

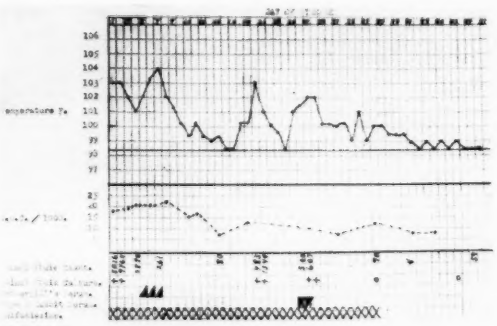
D. A. K., a one-year-old boy, was well until the day before admission, when, after four hours' exposure to the hot sun, he became irritable and feverish. He vomited repeatedly soon thereafter. Because of drowsiness and generalized convulsions which occurred several hours later, he was admitted to the contagious section of the Tripler General Hospital.

Examination on admission revealed a critically ill infant with a rectal temperature of 103 F. The anterior fontanel was bulging and there was slight nuchal rigidity. There was no evidence of a respiratory tract infection. The initial spinal tap revealed a cell count of 5106 per cubic millimeter of which 92 per cent were polymorphonuclears; the sugar was qualitatively absent and the protein was estimated at 135 mg. per hundred cc. Pleomorphic gram negative organisms were present on smear; their exact identity could not be determined without culture, but after forty-eight hours they were identified as Hemophilus influenzae.

Sulfadiazine, one and one-half grains per pound body weight per day, was instituted on the first day of hospitalization. The drug was well retained by mouth. An attempt was made to obtain the Alexander type of serum in this area. Failing this, Fothergill's serum (60 cc.) was administered intravenously on the fifth, sixth and seventh days. The patient's condition improved considerably, and by the fifteenth day he seemed cheerful, was taking his feedings well and showed only a mild pleocytosis of the spinal fluid (80 cells per cubic millimeter). However, on the twentieth and twenty-first days there was a relapse manifested by an abrupt rise in temperature, mild stupor and increasing tension of the anterior fontanel. Cultures of the spinal fluid were still positive for the organism and spinal fluid counts were 483 and 1340 on these two successive days.

A mainland requisition was filed at this time. Five days later, within a period of thirty-six hours the contents of three vials of anti-Hemophilus influenza type B rabbit serum totaling 75 milligrams of antibody nitrogen were injected intramuscularly after negative ophthalmic and cutaneous tests for sensitivity. An unsuccessful attempt was made to demonstrate free antibody by capsular swelling of the organism against the patient's blood serum after the serum administration, as suggested by Alexander.

The clinical course thereafter was most satisfactory. In view of the marked general improvement, even though a spinal culture had been positive one day following the serum administration, a spinal tap was not repeated until the thirty-sixth day. This fluid contained 90 cells and was bacteriologically sterile. Sulfadiazine was discontinued at this time. The temperature subsided by lysis to within normal limits by the thirty-eighth day. Repeated spinal fluids thereafter were free of organisms, though the spinal fluid



Temperature, leucocyte count in blood and spinal fluid, and spinal fluid culture, in relation to treatment.

Approved for publication. The opinions and views set forth in this article are those of the writers and are not to be considered as reflecting the policies of the War Department.

revealed 59 cells per cubic millimeter (70 per cent lymphocytes) two days prior to discharge. Four months have elapsed since this hospitalization of fifty-one days' duration and the patient has remained free of any sequelae.

It might be well to add that penicillin was used intrathecally and intramuscularly, shortly after admission and during the relapse, with equivocal results. In view of the recent literature[5] it most likely did not influence the course of the disease.

SUMMARY AND CONCLUSIONS

(1) Anti-Hemophilus influenzae type B rabbit serum was used late in the treatment of an infant male suffering from influenzal meningitis with apparent success after sulfadiazine and anti-influenzal horse serum had proven ineffective.

(2) The authors are aware of the importance of the time element and hence advocate the plan of combined therapy employing type-specific rabbit serum and sulfadiazine early in the course of the disease.

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Erythroblastosis Fetalis in a Chinese Infant with an Rh Positive Mother

I. L. TILDEN, M.D., AND WAH KAI CHANG, M.D.

Honolulu

The discovery of the Rh factor by Levine and Stetson[1] and Landsteiner and Wiener[2] in 1939–1940, and its application to the pathogenesis of erythroblastosis fetalis and hemolytic transfusion reactions, has aroused widespread interest throughout the medical world. The number of papers dealing with this subject listed in the Quarterly Cumulative Index increased from 5 in 1940 to 53 in 1943, and 39 are listed in the first quarter of 1944.

The details of isoimmunization in relation to erythroblastosis fetalis and hemolytic transfusion reactions have previously been presented locally by one of us[3] and will not be considered here. Suffice it to say that there is fairly general agreement in the literature that isoimmunization of an Rh negative mother by the Rh agglutinogen in fetal red cells accounts for at least 90 per cent of cases of erythroblastosis. The reader is referred to the Roche Review for May, 1944, which contains an excellent discussion of the whole problem.

The red cells of approximately 14 per cent of the random white population of the United States tested with standard anti-Rh serum lack the Rh agglutinogen, and these people are accordingly termed "Rh negative." The Honolulu Blood Plasma Bank at the time of this writing has tested some 500 people of Caucasian ancestry in Hawaii with standard Rh serum supplied by the Blood Donor's Service of New York finding 13.62 per cent of them Rh negative, a proportion similar to that existing on the mainland[4]. Only one Rh negative person was discovered, however, in 468 Japanese, and none at all in 118 Chinese. These results are in accord with the experience of Levine and Wong[5], who tested 150 Chinese living in New York, finding only one Rh negative individual in this group. More recently Waller and Levine[6] have reported on 150 Japanese residing in New York only two of whom were Rh negative with standard anti-Rh (Rh_0) serum. So far as we have been able to ascertain, these have been the only studies so far carried out on the incidence of the Rh factor in oriental people.

If the vast majority of orientals are Rh positive, as these studies seem to indicate, erythroblastosis fetalis should be an extremely rare disease in these races. Levine and Wong investigated this question in Chinese and were indeed able to find in the literature only one case of erythroblastosis in a Chinese infant; a search of the files of the Chinese Medical Journal yielded no additional cases. Furthermore, two men with a wide obstetrical experience in China could recall having seen no example of this condition in many thousands of deliveries. Waller and Levine[6] imply that the incidence of erythroblastosis fetalis and intragroup transfusion reactions is low in the Japanese race also because of "the scarcity of reports of these conditions in the Japanese medical literature."

In view of the foregoing the following case is significant because it occurred in a full-blooded Chinese infant whose parents are both Rh positive.

Case Report

A boy weighing 5 lbs., 11 oz., the third child of a Chinese couple, was born spontaneously at eight and one-half months on Oct. 10, 1944. The two previous pregnancies resulted in living children, both males, born in 1931 and 1938 respectively, and both were—and are—perfectly normal in every respect. Thus a period of seven years elapsed between the first and second, and the second and third, pregnancies; there were none in the intervals; and the mother had never received a blood transfusion.

The third pregnancy was uneventful and labor easy, lasting four hours. The baby appeared "bloated" at birth and the abdomen was distended. An indefinite mass was felt in the right side of the abdomen. The baby took only a few gasps of breath, and treatment with the respirator, oxygen and lobeline was without avail. The heart stopped beating about ten minutes following birth.

Autopsy Findings

Gross: There was no remarkable external abnormality except that the baby appeared unusually pale. Both pleural cavities and the abdominal cavity were filled with clear fluid. The partial pericardium was adherent to the sternum by a layer of partially organized blood clot which measured 0.5 cm. in thickness.

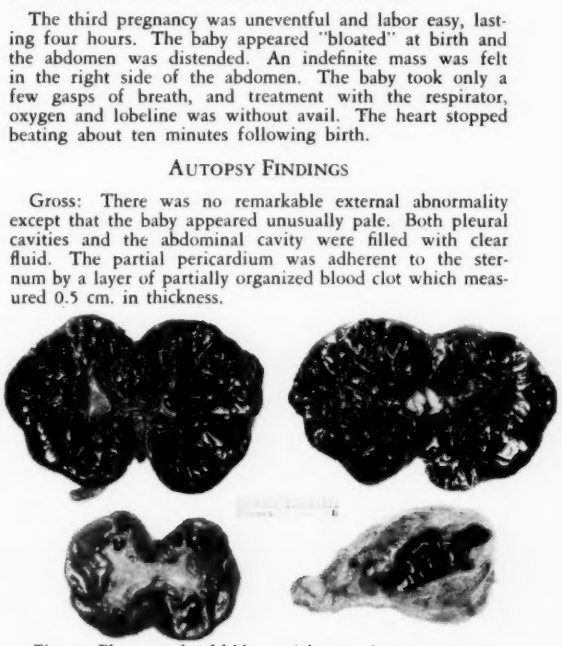

Fig. 1. Photograph of kidneys (above) showing extensive renal hemorrhage. Normal infant kidney (below left) and blood in urinary bladder (below right).

From the Kapiolani Maternity & Gynecological Hospital, Honolulu.

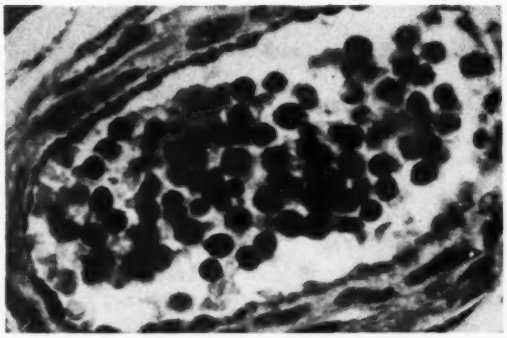

Fig. 2. Small vessel in the heart packed with nucleated blood cells, most of them members of the erythrocytic series. Hematoxylin and eosin. X 600.

The liver was enlarged (116 grams), pale and firm. The spleen weighed 9 grams and was unusually pale and very firm in consistency. Both kidneys were greatly enlarged as a result of extensive medullary hemorrhage, the right weighing 31.5 grams and the left 28 grams (fig. 1). The calyces and pelves of both kidneys and the urinary bladder contained recent blood clot. The urachus was patent to a point just below the umbilicus. Microscopic: The outstanding finding in all the microscopic sections was the extreme engorgement of all vessels by immature blood cells (fig. 2). Many of these were easily recognizable as normoblasts and megaloblasts, while some were larger, with large round or oval pale-staining nuclei. The latter were thought to be blast cells of one sort or another. The sections taken through the myocardium presented an especially striking picture. Every capillary was so packed with nucleated blood cells that the individual muscle fibers were actually pushed apart (fig. 3). The pancreas also presented an

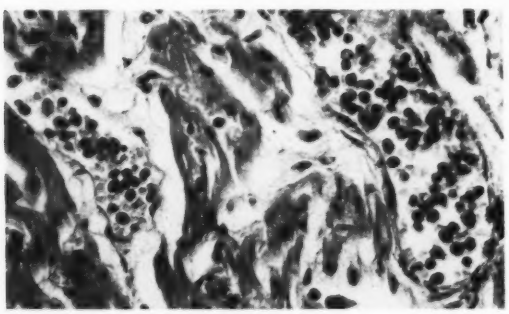

Fig. 3. Heart showing engorgement of capillaries by nucleated red cells. The muscle fibers are pushed apart to some extent. Hematoxylin and eosin. X 250.

amazing appearance because extra-vascular infiltration of the parenchyma by nucleated red cells had taken place. Some of these exhibited large mitotic figures, producing a picture not unlike that of a malignant neoplasm (fig. 4). The liver was one vast island of hematopoiesis with the liver cells obscured and mitotic figures much in evidence (fig. 5).

Hematologic: The blood in the heart was still fluid although the autopsy was not performed until 24 hours following death. A blood count done on the heart blood revealed between 500,000 and 600,000 white cells and 2,100,000 red blood cells per cubic mm. It was determined from smears made of the blood in the white counting pipette and from smears made of the heart blood that the majority of the cells giving the high white count were nucleated members of the erythrocytic series. The fetal red cells were Rh positive.

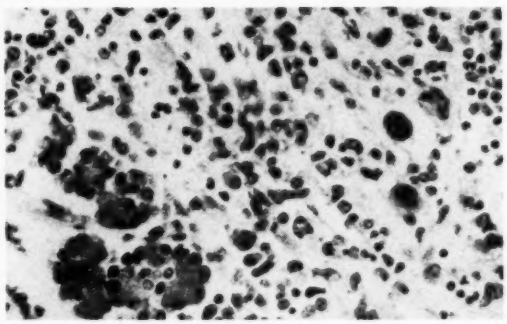

Fig. 4. Infiltration of the pancreas by immature blood cells with encroachment upon the acinar tissue (below, left). Observe the large bizarre mitotic figures. Hematoxylin and eosin. X 250.

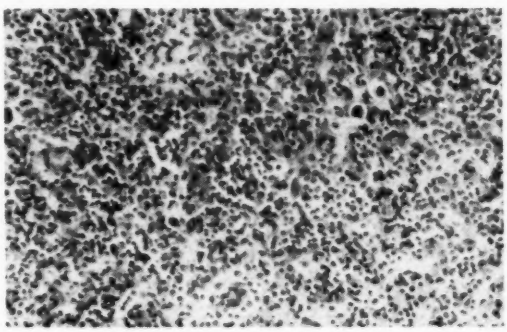

Fig. 5. Extreme hematopoiesis in the liver. Observe the large mitotic figures and the distortion of the hepatic parenchymal cells. Hematoxylin and eosin. X 130.

Anatomic Diagnosis:

1. Erythroblastosis fetalis.
   - A. Fetal hydrops.
   - B. Anemia, all organs.
   - C. Engorgement of all vessels by immature red cells.
   - D. Extrapericardial hemorrhage.
   - E. Extensive bilateral renal hemorrhage.
   - F. Hepatomegaly.
   - G. Infiltration of the pancreas by nucleated red cells.
2. Patent urachus.

SEROLOGIC FINDINGS

Blood was obtained from the mother on the second day following delivery and the serum set up with a series of 10 different fresh washed group 0 red cells. This procedure was accomplished by mixing 2 drops of serum with 2 drops of a 2 per cent suspension of the group 0 cells in a series of small tubes, incubating them at 37 degrees centigrade for one half hour, centrifuging at 500 r.p.m. for 1 minute and then reading the sediment pattern in the bottom of the tubes. The sediment was then gently resuspended and microscopic slide readings made. There was no agglutination whatever of any of the group 0 red cells. The mother's

red cells, tested on two occasions with known Rh negative cells as a control, were Rh positive. The father was found later to be Rh positive also.

DISCUSSION

There can be no doubt that the present case is a clear-cut example of erythroblastosis fetalis. The fact that the mother is Rh positive, and that her blood contained no demonstrable anti-Rh agglutinins, is of particular interest in view of our experience with other examples of this condition in Hawaii. We have personal knowledge of 5 cases of erythroblastosis fetalis (including the present one) in which the diagnosis was well established by clinical, laboratory and (in three of them) autopsy criteria. Three of these cases were briefly summarized one year ago[3]. The mother was Rh negative in two of them only, and Rh positive in the remaining three. In four of them the mother's blood serum was tested with group 0 red cells for Rh isoantibodies and in no instance could immune bodies be demonstrated.

It should be pointed out, however, that a number of Rh sub-groups are known to exist, and it is apparently possible for an Rh positive mother to become immunized to Rh positive fetal red cells of a different subgroup[7]. This concept has been offered to explain cases of erythroblastosis in infants born of Rh positive mothers. Further, Rh isoagglutinins in the mother's blood have been demonstrated in less than one half of the cases of erythroblastosis fetalis[8], so that failure to find them does not necessarily rule out isoimmunization as the background for the disease. It does, however, cast some doubt on the safety of depending upon cross matching mixtures incubated at 37 degrees centigrade to rule out Rh incompatibility in obstetrical patients, and in patients receiving repeated transfusions of blood.

The number of cases in our series is of course too small to permit definite opinions one way or the other, but the observations we have made on them indicate nevertheless that we should keep an open mind on the subject of isoimmunization in erythroblastosis. They also emphasize that the classical picture of this disease may occur in infants born of Rh positive mothers, and that physicians should not dogmatically eliminate erythroblastosis on the basis of an Rh positive typing of the mother.

In the case reported a period of 7 years intervened between each consecutive pair of the three pregnancies; the mother had no abortions or miscarriages in the intervals, and received no blood transfusions. It is difficult indeed to conceive of much opportunity for isoimmunization of the mother to take place under these circumstances. As already pointed out, however, it is theoretically possible that she became immunized to a fetal Rh subgroup during her third and last pregnancy with resultant erythroblastosis of the offspring.

In any event the present case is important and worth recording because it occurred in a Chinese infant; it may be the second such case ever to be reported.

SUMMARY AND CONCLUSIONS

1. A case of erythroblastosis fetalis in a Chinese infant, possibly the second such case to be recorded in the literature, is presented.

2. Both parents are Rh positive and no isoagglutinins could be demonstrated in the mother's blood serum following delivery. Two previous pregnancies resulted in normal living children and a period of 7 years elapsed between the first and second and the second and third pregnancies. The mother had no abortions or miscarriages in the intervals and has never received a blood transfusion.

3. Several studies seem to indicate that Rh negative individuals are extremely rare in the oriental races. This finding is in accord with the seeming rarity of erythroblastosis fetalis in these races.

4. Four other examples of erythroblastosis personally observed in Hawaii are cited briefly. Since the mothers of three of these 5 cases (the present one is included) are Rh positive, physicians are warned not to be too sure of eliminating this disease from consideration on the basis of a positive Rh typing of the mother.

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AT A PACIFIC RED CROSS ARTS AND CRAFTS CENTER, Maj. Gen. Norman T. Kirk, the Surgeon General, sees convalescent soldiers regaining their skills. Accompanying Gen. Kirk are Brig. Gen. John M. Willis, Surgeon, Pacific Ocean Areas, and (behind Gen. Kirk) Col. Paul H. Streit, Surgeon, Central Pacific Base Command. Fashioning native island products under the direction of Red Cross supervisor Joan Farrel, Schuyler, Nebr., are, clockwise from left, Pfc. Ernie L. Holmes, Mayfield, Ky.; Pfc. Omar Schilling, St. Louis, Mo.; Sgt. Howard Labord, Los Angeles, Cal.; Sgt. Charles E. West, Cleveland, Ohio; Sgt. Wilce Hall, Dallas, Texas; Pfc. George W. Hobbs, Phoenix City, Ala.; Pfc. Sam Varisco, Montegut, La. (U. S. Army Signal Corps photo.)

U. S. ARMY SURGEON GENERAL, MAJ. GEN. NORMAN T. KIRK, on a tour of the Pacific Ocean areas, observes training of wounded soldiers at a Central Pacific convalescent center, as Sgt. Joseph P. Morgan, Long Beach, Cal., with left arm in cast, assembles a machine gun. His instructor, Pvt. George B. Matthias, Houghton, Wash., was a paratrooper with the 11th Airborne Division on Leyte, when a sniper got him in the leg. (U. S. Army Signal Corps photo.)

HAWAII MEDICAL JOURNAL

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EDITORIALS

POSTGRADUATE COURSE CONCLUDED

Nearly five hundred medical officers of the Army, Navy and Public Health Service, and over a hundred and thirty civilian physicians, paid an estimated 2,775 visits to the fourteen sessions of the Postgraduate Course of the Honolulu County Medical Society, held January 8 to 14, 1945, in Honolulu. These sessions consisted of four symposiums, on cardiovascular disease, neuropsychiatry, cancer, and diseases of the chest, and ten round table discussions, on general medicine, eye, orthopedic and neural surgery, gynecology and obstetrics, urologic surgery, allergy, abdominal surgery, otology, tropical diseases and skin diseases. Both the symposiums and the round table discussions were conducted by specialists in the fields concerned, selected from the armed forces for the most part, with a scattered representation of civilian physicians.

The Chairman of the Post-graduate Committee, Dr. C. M. Burgess, and the members of the Committee, Drs. Mossman, J. Lam, Sakimoto, Wilbar and Onstott, are to be congratulated on the all round excellence of the program and the arrangements. The Committee was particularly indebted to one of its members, Doctor Robert Onstott, Medical Director, U.S.P.H.S., who acted as intermediary between the civilian physicians and the chiefs of the Army and Navy medical services, Admiral Lucius W. Johnson, M.C., U.S.N., and General John Willis, M.C., U.S.A., in arranging for the services of the military participants. "Standing room only" was the rule at practically every session throughout the week. An interesting feature of the attendance was that it included representatives from forty-two States, the District of Columbia, and Hawaii.

Space does not permit us to name all of the men who contributed to the success of the program, but special mention must be made of three men whose cooperation and assistance really made the whole affair possible: Colonel A. W. Oughterson, M.C., A.U.S., Lt. Col. Ed. J. Ottenheimer, M.C., A.U.S., and Captain M. J. Capron, M.C., U.S.N.R.

Many of the papers read at these meetings are to be published in forthcoming issues of the HAWAII MEDICAL JOURNAL.

GROUP CARE FOR CHILDREN

Children cared for in groups do not develop normally. This is the consensus of authorities on the subject of child development. Even at the age of two or three, blunting of their reactions is apparent. Individual, personal, parental attention and affection are indispensable to their proper mental and emotional growth.

The present tendency of mothers of small children and infants to deposit them during the day in child care centers while they hold down a full time job cannot be too strongly deplored. If their husbands are not gainfully employed; if they are widows; if they must work, in short, why then of course they must. But when they work merely because a well paid job is readily available, then their conduct is reprehensible. Their place is at home, caring for their children.

Patriotism is no defense. If it is patriotic for a woman to work whether she must work or not, it is certainly equally unpatriotic for her to contribute to the future mental ill-health of her offspring. It is a truism that the future is in the hands of today's children. "Post-war planning" must take this into account.

The new Child Guidance Clinic described by Dr. Wilbar in this issue of the JOURNAL is a forward step in community attention to the mental health of Hawaii's children. Let us not step backward in this respect by condoning unessential group care for them.

LEPROSY IN HAWAII

BOARD OF HOSPITALS AND SETTLEMENT WAR EMERGENCY ACTIVITIES 1941–1944

Pre-War Considerations

Under war emergency conditions, plans for the maintenance and supply and protection of all persons segregated and confined at Kalaupapa Settlement on Molokai, and at Kalihi Receiving Station in Honolulu, warranted the fullest consideration first, in the matter of the procurement and delivery of hospital and general supplies for Kalaupapa and second, a plan for the protection and disposition of the patients and staff at Kalihi.

As of June 30, 1941, the following groups of persons were under the care and jurisdiction of the Board of Hospitals and Settlement:

Active Leprous Patients		419
At Kalaupapa Settlement, Molokai	359	
At Kalihi Hospital, Honolulu	60	
Patients on Temporary Release		166
Kalaupapa Settlement	31	
Honolulu District	72	
Rural Oahu & Outside Islands	63	
*"Kokuas"** at Kalaupapa only		9
Non-Leprous Children of Leprous Parents		143
(Wards of the Territory during minority)		
In Honolulu	65	
Rural Oahu & Outside Islands	78	
TOTAL OF ALL GROUPS		737

Kalaupapa Settlement

Kalaupapa Settlement on the Island of Molokai is ideally located and well equipped for the care of persons afflicted with leprosy. The various facilities now established at the Settlement can well take care of an added number of patients who might be evacuated from Kalihi, with but little expansion necessary. *No housing shortage exists at the Settlement,* due to the continuing decline of the number of leprous patients in the Territory.

At Kalaupapa, in anticipation of contingencies under a National Emergency, hospital supplies for a six months' period were ordered, general supplies and provisions also ordered in excess of usual current needs, additional warehouse space provided in existing buildings, and provision made for additions to the fuel oil and gasoline storage facilities. The usual program of repairs was accelerated and expanded to provide some additional quarters. New areas were added to the vegetable gardens, and increased activities promoted in local fishing and poultry, hog and cattle raising.

The first real shock of the emergency situation was the suspension of the long established means of transportation between Honolulu and Kalaupapa—the Inter-Island steamer "Hawaii" discontinued its regular weekly freight and passenger service following its last trip on November 25, 1941, and the Inter-Island Airways cancelled further calls of its planes at the Kalaupapa Airport, which shortly thereafter was rendered unserviceable by order of the U. S. Army Engineers. Thus the matter of transportation to serve Kalaupapa immediately became a matter of great urgency.

In the period from June 30, 1941, to the above date of suspension of service, November 25, 1941, the steamer "Hawaii" did, however, deliver approximately 970 tons of general cargo to the Settlement, much of which was made up of reserve stocks of provisions and supplies for medical and general use.

Immediately following the withdrawal of the steamer "Hawaii" and the plane service, arrangements were made with privately owned sampans, under charter, to engage in the service to Kalaupapa. This was augmented on two occasions by shipment of 40 tons each, delivered by the tender "Kukui," through the courtesy of the U. S. Coast Guard, and by one trip of the steamer "Hawaii" by cooperation of the U. S. Army, with a transfer of 35 patients from Kalihi and 110 tons of freight made up of patients' effects, school and institutional equipment, etc.

On May 27, 1942, the Sampan "Kalawao," recently purchased by the Territory for this run, made its first trip to Kalaupapa, thus eliminating the further use of privately owned craft which had proven unsatisfactory and costly.

In this period from December 1, 1941, to June 30, 1942, approximately 700 tons of mixed freight was delivered by boat from Honolulu and in addition, fresh beef, vegetables and certain other emergency supplies were brought in from leeward Molokai during the first three months of the period. All such supplies were, of necessity, brought down the Pali Trail, a descent of 1,600 feet, by pack animals.

* Helpers, from the verb *kokua*, to help, also to acquiesce, concur.

By June 30, 1942, all reasonable requirements had been currently met and on this date, reserve food supplies for approximately six months and hospital supplies for a year or more were on hand at the Settlement. Thence to the date of this report, the matter of the procurement of materials and supplies in Honolulu, and the transportation to Kalaupapa, proceed in a relatively satisfactory manner.

Funds for the purchase of the Sampan "Kalawao" were made available April 6, 1942, by Governor Poindexter, by allotment from the appropriation—Hawaii Defense Act 24, Special Session Hawaii 1941, of the General Fund—

> "For the purchase and reconditioning of one 65-foot Diesel Sampan for transporting freight and supplies to Kalaupapa."

On October 15, 1942, the Kalawao School was established at Kalaupapa for the 32 school children evacuated from Kalihi, in cooperation with and under the direction of the Department of Public Instruction which provided 2 teachers and equipment, and set up an appropriate program of academic, domestic science and vocational work.

Kalihi Hospital

Kalihi Receiving Station and Hospital, on the Island of Oahu, is located in the Kalihi District at the water's edge between Honolulu Harbor and Pearl Harbor. It is within the limits of military targets and in the shadows of the bomb-release line. Should hostilities ever occur the patients should be evacuated from this hospital.

The war emergency situation has been felt quite severely at Kalihi Hospital, with various radical changes and adjustments carried out upon the recommendation of the Military Authorities.

Governor Poindexter and the members of the Board concurred in the plan that the Kalihi Receiving Station should continue to function, as such, under the legal requirements for its operation, and that provision be maintained for the hospitalization and treatment of a limited number of patients, the majority of the patients at Kalihi to be transferred to Kalaupapa, including all the children, and that the school facilities be also transferred to Kalaupapa.

It was further planned that additional small groups of patients be transferred from time to time to Kalaupapa, as new patients are entered at Kalihi, in order to keep the number there maintained at a minimum of approximately 20 and, further, that in case of military necessity, suitable provision be made at a location outside of the evacuation zone, for the evacuation of patients and personnel then remaining at Kalihi.

Air raid shelters, of sufficient capacity to accommodate patients and staff, were constructed in the compound in March of 1942; and also, late in 1942, an evacuation unit, with provision for housing and feeding about 30 patients and staff, was constructed in Kalihi Valley. Both units were provided by the Office of Civilian Defense.

On May 15, 1942, of the 55 patients at Kalihi, 35 patients, including all the children, were transferred to Kalaupapa on the steamer "Hawaii," assigned for this purpose by the U. S. Army, accommodations having been previously provided at Kalaupapa. This transfer was satisfactorily carried out in all respects, with but 20 patients then remaining at Kalihi.

The activities of the U. S. Leprosy Investigation Station, located within the Kalihi compound and long conducted by the U. S. Public Health Service, were suspended, the personnel transferred to other Federal fields and the Station closed as of June 13, 1942. It is the earnest hope of this Board that the Territory, at the earliest possible date, may again have the advantage of this important service in the field of leprosy. Medical officers of the U. S. Public Health Service were designated Attending Physicians at Kalihi Hospital in full charge of the medical care and treatment of all patients. Thus with the closing of the Station this splendid service was terminated. Subsequently the Public Health Service assigned one of its medical officers for part-time duty at Kalihi and this arrangement continues to date.

General Administration

No administrative reorganization has been required as a result of the emergency, but reallocation of duties has been effected in many cases and replacements, *when available,* made to fill the many vacancies caused by those entering military service, retirement and resignations:

ON MILITARY LEAVE—

Name	*Position*	*Date*
Hercules Mendonca*	Clerk, Kalihi Hospital	12/ 9/41
Dr. E. K. Chung-Hoon†	Board's Physician	12/10/41
Arthur Lee	Clerk, General Office	11/14/41
David Arakawa	Clerk, General Office	7/ 1/44
Satoru Ochiae*	Clerk, Kalihi Hospital	12/ 9/41
Solomon Kolii	Watchman, Kalihi Hospital	4/ 6/44
George Palolo	Cook, Kalaupapa	12/ 9/41

RETIREMENT—

Dr. J. T. Wayson*‡	Board's Physician	9/25/43
Kaipo Kaiwi, R.N.†	Supv. Nurse, Board's Clinic	1/ 7/44

* No replacements.
† Temporary part-time replacement. Others have been replaced.
‡ Deceased.

Of the 70 resignations in the department from October 1941 to date, exclusive of military leave and

retirement, the majority of the employees sought other and more lucrative war time work; other separations were for normal administration reasons. Even in peace times, a relatively large turnover of employees has been the case at Kalaupapa.

The manpower shortage at Kalaupapa has been offset to some degree by a greater and more active participation by the patients in the work program at the Settlement under an improved wage scale.

The department continues to be handicapped by the vacancies in several important positions, and for those vacancies replacements have not been available.

Fortunately the needs of this department were such that no great assistance was required of other departments or agencies. This was particularly the case as new procedures were established and recognized and departmental action adapted thereto.

H. A. KLUEGEL, Superintendent
of Hospitals and Settlement

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NEUROPSYCHIATRIC COMMENT

A CHILD GUIDANCE CLINIC IN OUR COMMUNITY

Thirty-six years since the founding of the first child guidance clinic, the Territory of Hawaii is about to have established its first such clinic. In the overall picture of child guidance work in the United States, this will add one more clinic to approximately 300 now in existence in our nation. However, in our Territory various aspects of mental hygiene among children have been and are still being carried on by a number of agencies, including the juvenile court, psychologic clinic, schools, child welfare agencies and others. Such work has not heretofore been intergrated on a community level, and it is to be hoped that a child guidance clinic will accomplish that end.

Much work of a child guidance nature is done by the individual physician among his own patients. The individual private physician, in his daily work among his patients carries a large portion of the burden of helping children to attain better mental health. In innumerable ways in the course of treating physical ailments he is called upon to consider and make decisions concerning the emotional and social problems of the parents as well as the children. Many times, however, the physician finds himself handicapped by lack of time to obtain a detailed history of the family and other background factors leading up to behavior disturbance. Often, he would welcome being able to turn over to someone else for special study an adolescent youngster whose family he has known for years, but who has for no apparent reason become severely rebellious and uncontrollable. In other cases the physician may, after complete examination, find no organic basis for such symptoms as enuresis, poor school work or chorea-like movements, and may recognize the desirability of using specialized diagnostic methods to uncover underlying psychogenic factors. The Child Guidance Clinic will be available for referral of such cases by the physician, and will send him reports of findings.

A well-organized and well-run child guidance clinic, besides studying the individual children who show lack of adjustment to their environment as evidenced by their behavior in their homes or schools or elsewhere in the community, also establishes functional and cooperative connections with the various agencies concerned with adapting the child satisfactorily to his surroundings and to the people with whom he must live. We all know that the best time to effect a preventive program against either physical or mental maladjustments is during the period of childhood. Attitudes and personality trends are developing then and have not become too fixed. It is true, however, that working with the problems of children means working with the adults who control these children, especially with the parent of the child, who influences the child more than any other individual. The psychiatrist, psychologist and social worker, making up the child guidance clinic, realize that the responsibility of child training must be placed upon the father and mother. The teaching of the parent, then, is probably the prime objective of the case work in child guidance clinics, although the teacher, social worker, church worker or other individuals who intimately affect the child's life must often come into the picture. The importance of these latter is, of course, more evident in children who are dependent for their living upon social agencies, institutions or foster homes because of having no parent to look after them for one reason or another.

True child guidance work such as set up in clinics with well trained personnel, considers the child as a whole rather than simply his set of symptoms. The discontinuation of certain antisocial behavior does not necessarily correct the child's mental outlook and insure him of becoming a well-adjusted citizen in the community. The total picture of the physical and mental experiences and reactions which lead to the total functioning of the individual child needs to be considered so that the basic pattern for his teaching and everyday environment can be outlined to keep him from becoming delinquent from the viewpoint of society and make the maximum use of his mental and physical makeup.

Let no one doubt the need for such guidance work to prevent individual mental breakdown or maladjustment. Over half of the hospital beds in the country are occupied by patients suffering from mental illness and still more beds are required to meet the demands of long waiting lists. About 75,000 new patients are admitted annually to governmental institutions for the mentally ill. These large figures do not in general include the constitutionally inadequate, the psychoneurotic, the misfits, the alcoholics and the drug addicts, estimates on whom are not available, but which, as all physicians know, occur in large numbers in any community. Of registrants with the Selective Service between 18 and 37 years of age who were rejected as 4-F's up to June 1, 1944,

30.4 per cent were rejected because of mental disease or mental deficiency.

The war has made it more difficult than ever to maintain mental equilibrium in this community as well as elsewhere. Changes of employment, restrictions of blackout and the curfew, excessive working hours and difficulties in obtaining social relaxation have all aided in causing unusual mental strain. Whether or not these factors will cause a severe type of mental breakdown ultimately cannot as yet be determined, but undoubtedly they increase the difficulties of mental and social adjustment to community life.

The need for child guidance work in this community is extensive. Such a clinic should completely cooperate with physicians and public and private organizations concerned with the field of child behavior and should aid in coordinating the organizational activities in this regard. The cooperation must, of course, be mutual and work both ways if we are to accomplish the desired objectives of child guidance work, such as has been done in a number of mainland communities where child guidance clinics have been established.

C. L. WILBAR, JR., M.D.
President, Board of Health

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COUNTY SOCIETY REPORTS

HAWAII COUNTY MEDICAL SOCIETY

The 233rd meeting of the Hawaii County Medical Society was held at the Hilo Memorial Hospital on Thursday, December 8, 1944. The meeting was called to order by the President, Dr. M. H. Chang, at 7 P.M. and the minutes of the previous meeting were read and approved.

Dr. Wm. M. Shanahan, the guest speaker of the evening, opened the meeting to general discussion. Members of the society asked questions in regard to procedures and methods used in the treatment and care of the mentally ill. He emphasized chiefly the importance of not committing patients unless absolutely necessary but rather referring them to him at The Queen's Hospital. This procedure, in many cases, would prevent commitment and also speed the treatments which are given and in many cases results in dramatic cures or improvements in the patient. The general interest in the discussions of the evening was so great that it was moved and unanimously carried that all business be dispensed with and our next meeting will be entirely a business meeting. There were a few matters, however, which needed attention and were taken care of before the meeting was adjourned. One of these was the appointment of Dr. Loo to replace Dr. Keay on the Board of Census.

Reports from other committees are to be taken up at the next meeting.

A copy of the revised fee schedule was turned over to Dr. Leslie. It was recommended that he make copies of this fee schedule and send them to members of this Society so that they may be prepared to discuss the subject at the next meeting.

Meeting was adjourned at 9:45 P.M.

R. T. EKLUND, M.D.,
Secretary.

The 234th monthly meeting of the Hawaii County Medical Society was called to order by Dr. M. H. Chang in the Hilo Memorial Hospital Staff Room at 7:10 P.M., January 4, 1945.

In the absence of the secretary, Dr. T. Yoshina was appointed secretary pro tem. The minutes of the last meeting were read, approved and placed on file.

Dr. Chang announced that the AB Factors (Lilly) were available at the Hilo Memorial Hospital to all physicians on the island. He also announced that the Society has not received any communication from the Hawaiian Airlines, Limited concerning the transportation of mentally ill patients on the planes.

Dr. Patterson moved and Dr. H. Sexton seconded that Dr. Thomas Keay, who retired and left the island, be made an honorary member of the Society. This was unanimously carried and the secretary was directed to inform Dr. Keay of this action.

The applications to membership of Dr. Joseph Simon and Dr. Evelyn G. Ross who are transfers from the Honolulu County Medical Society were approved unanimously.

Dr. S. R. Brown, Chairman of the Legislative Committee, reported on various desirable legislation as proposed by the Psychiatric and Neurological Committee of the Territorial Medical Association of which Dr. Kepner is the chairman. Dr. Brown stated that he found no objections to the intent of such proposed acts similar to the Briggs Law of Massachusetts, Sexual Psychopathic Act, Uniform Expert Testimony Act and the Youth Correction Authority Act. Since the literature from Dr. Kepner was merely of informative nature, no action was taken. Dr. Orenstein moved and Dr. L. L. Sexton seconded that the Psychiatric and Neurological Committee of the Territorial Medical Association be thanked and notified of the receipt of the information.

Dr. William Leslie, Chairman of the Fee Schedule Committee, opened the discussion on the Industrial Accident Fee Schedule of the Honolulu County Medical Society and the Hawaii Workmen's Compensation Association. The members were interested to learn what would be desirable fees locally for some of the common daily practices, such as office visits, house calls, obstetrical fee, appendectomies, etc., and the chairman was instructed to investigate and report back at the next meeting. Dr. A. T. Roll was appointed by the Chair to fill the vacancy on the Fee Schedule Committee, due to the absence of Dr. Crawford who is on the mainland.

Dr. William Leslie, Chairman of the Tuberculosis Survey Committee, outlined the present plan of the coming tuberculosis survey program. After lengthy discussion, the committee was asked to enumerate the recommendations which it wishes the Society to act upon at the next meeting.

Dr. Leo Bernstein, Chief Health Officer for the Is-

land of Hawaii, reported that the Blood Wassermann test would be run along with the tuberculosis survey.

Dr. Leo Bernstein stated that the EMIC program is operative now and includes all physicians and approved hospitals. It was pointed out in the discussion that some of the physicians were not informed of this and the wives of the servicemen were referred to the Mt. View Army Hospital or the services were paid for by the women themselves who chose to go to the Hilo Memorial Hospital. Dr. C. B. Brown moved that Dr. Samuel Wishik, Director of the Bureau of Maternal and Child Health be requested to inform each physician on the Island on the present set-up and to notify him immediately of any changes in the future in the EMIC program. This was seconded by Dr. H. Sexton and was carried unanimously.

Dr. Leo Bernstein read Dr. Wishik's communication concerning the consultation service for indigent and marginal patients which is available through the Board of Health.

The meeting adjourned at 9:40 p.m.

TERUO YOSHINA, M.D.,
Secretary, pro tem

KAUAI COUNTY MEDICAL SOCIETY

A special meeting of the Kauai County Medical Society was held on December 11, 1944, at 7:00 P.M. at the Wilcox Hospital. Dr. Eric Fennel, President of the Hawaii Territorial Medical Association, was the guest of honor. Dr. Fennel addressed the Society on various matters pertaining to the Territorial Association and County Societies and dwelt particularly on matters of public policy and legislation. Dr. Fennel's address was received with interest and he was invited to be present at a meeting of the Society with Kauai's legislators and Board of Supervisors to be held on December 13. No routine business was considered at this meeting.

The regular monthly meeting of the Kauai County Medical Society was held on December 13, 1944, at the Lihue Hotel at 6:30 P.M. in the form of a dinner meeting. Dr. Fennel, President of the Hawaii Territorial Medical Association, Kauai's legislators, and members of the Kauai Board of Supervisors were guests of the evening. The purpose of the meeting was to enable the Society to establish an acquaintance with the legislators and supervisors and to inform these lawmakers that the Society is definitely interested in being notified of, and consulted on, any proposed legislative action concerning medical matters. Dr. Fennel presented the general viewpoint of the physician in regard to medical legislation. A lively discussion was maintained throughout the evening and it was generally expressed that the meeting would be productive of closer and better relationships between the physicians and the law-makers in the future. No routine business was considered at this meeting.

DAVID LIU, M.D.,
Secretary

MAUI COUNTY MEDICAL SOCIETY

Regular meeting held January 9, 1945 at Wailuku Hotel. Dr. Patterson presided. Members present: Drs. Dunn, Balfour, K. Izumi, Shimokawa, Sanders, T. P. Chow, E. L. Chow, McArthur, Lightner, Osmers, Kanda, Patterson and von Asch.

Dr. Patterson presented a report for the Library Committee. He reported that Prior & Co. are revising our copies of Tice & Lewis for our library and are bringing them up to date. He also mentioned that we are getting several hundred journals from the Honolulu County Medical Library.

Dr. Sanders, Chairman of the Social Committee, gave a report on the annual dinner party. It is to be held at the Country Club and the tentative date is February 23.

Dr. Patterson then turned the meeting over to Dr. Fennel, President of the Hawaii Territorial Medical Association, who gave a talk covering various phases of the activities of the Territorial Association. He covered the topics of Fee Schedule, Board of Health activities, Dr. Kepner's Model Bill which may come up in the next legislature, Pre-marital Examinations, Registered Laboratory Technicians Bill, E.M.I.C., H.M.S.A., and University of Hawaii Technicians Training Course. He also gave a brief talk on Electro-colorimeters, sedimentation rates and Weltmann reactions.

Meeting adjourned.

GEORGE VON ASCH, M.D.
Secretary

NOTES AND NEWS

SCIENTIFIC PAPERS APPROVABLE LOCALLY

We have recently been informed by Admiral Lucius W. Johnson and Major Millard S. Purdy that papers intended for publication in the HAWAII MEDICAL JOURNAL may be approved for publication through the local Public Relations officials instead of having to be sent to Washington for this purpose. Such papers may be submitted directly to the District Medical Officer, Admiral Johnson, for the Navy, or to Lt. F. W. Tuohy, H.Q., U.S.A.F.C.P.A., A.P.O. 958 for the Army. Or. if the authors so desire, the JOURNAL will be glad to assume responsibility for securing the proper approval.

PERSONALS

It has recently been announced that COMDR. PAUL WITHINGTON, M.C., U.S.N.R., has been promoted to captain. He is now stationed here at the navy dispensary of the old naval station. CAPT. WITHINGTON holds the highest rank of all the many Honolulu physicians and surgeons now serving in the armed forces. CAPT. WITHINGTON has been on active duty in the navy since June 1941, at which time he held the rank of lieutenant commander. COL. CLARENCE E. FRONK is believed to have held the highest army rank. He is now on inactive service, having returned to private practice last year after serving as medical adviser to the territorial selective service.

COL. WILLIAM S. MIDDLETON, chief consultant in medicine for the American Army's European Theater of Operations and former dean of the University of Wisconsin Medical School, has been named a Fellow of the Royal College of Physicians of Great Britain, a distinction now held by only two other native Americans. DR. MIDDLETON has been an honorary member of the Honolulu County Medical Society since 1935.

DR. T. YOSHINA was recently appointed chief of staff of the Hilo Memorial Hospital. DR. HENRY B. YUEN and DR. HAROLD M. SEXTON will assist DR. YOSHINA as vice chief and secretary, respectively.

On January 11, 1945 a daughter, Nancy Lynne, was born to DR. and MRS. HAROLD M. JOHNSON of Honolulu.

Marilyn Adelaide, the first child of DR. and MRS. HOMER W. HARRIS of Lihue, Kauai, was born on December 10, 1944.

DR. MARVIN BRENNECKE of Koloa, Kauai and DR. ROGERS LEE HILL of Honolulu were accepted into fellowship in the American College of Surgeons during 1944.

DR. WALTER M. OZAWA, Territorial Hospital, was promoted from associate member to full membership in the American Psychiatric Association at the meeting in Philadelphia in May, 1944.

DR. R. D. KEPNER has been appointed by Governor Stainback to membership on the executive committee of Veterans' Advisors. This was on the recommendation of Mr. A. L. Castle, chairman of Veterans' Advisors.

DR. PHILIP S. ARTHUR is the new assistant in the office of DR. JESSE W. SMITH in Honolulu. DR. ARTHUR graduated from Georgetown College and University Medical School in 1938, then spent eighteen months at Kahuku with DR. ROTHWELL. He returned to the mainland for a further internship and residency of eighteen months. In July, 1944 he completed a three-year fellowship in Radiology at the Georgetown University Hospital.

HEALTH DEPARTMENT ENLARGED

The staff of the Territorial Board of Health has recently been augmented by the addition of new members in various fields, among whom are the following:

DR. MARTHA W. MACDONALD, child psychiatrist, is now associated with DR. WILLIAM SHANAHAN, acting director of the Bureau of Mental Hygiene. DR. MACDONALD is a graduate of the University of Pittsburgh and has recently held the position of Psychiatric Services Adviser, Division of Research in Child Development, Children's Bureau, Washington, D. C.

MISS LOUISE BAILEY, physiotherapist, has come to aid the work of the Bureau of Maternal and Child Health and the Crippled Children's Bureau. After studying at Sargent College, Boston University and Harvard Medical School, MISS BAILEY became a student of Dr. Winthrope Phelps' Institute for Cerebral Palsy in Baltimore, Maryland. Here in the Islands her work will be particularly with children suffering from cerebral birth palsy.

DR. ALLSTON O. GOURDIN, who will do venereal disease control work here, has recently been a special consultant in gonorrhea for the U. S. Public Health Service in Washington, D. C. Born and educated in Hongkong, China, Dr. Gourdin practiced medicine there from 1928 to 1941. During 1942 he worked with the American Red Cross among civilian prisoners interned in Hongkong.

MISS LAURA DRAPER, now head of the Public Health Nursing Bureau, graduated from Wellesley College and was trained in nursing at Philadelphia General Hospital and Simmons College. For the last ten years she was Director of the Community Health Service in Minneapolis, Minn. Previously she had been supervisor of nursing in Pennsylvania for the Metropolitan Life Insurance Company.

MR. QUINCY CARLISLE TUCKER has retired from the navy after thirty years of clinical and research work in Samoa, Nicaragua and elsewhere. He is now laboratory administrator for the island of Maui.

JAMES THOMAS WAYSON, M.D.
1870–1945

Dr. James Thomas ("J. T.") Wayson died on January 12, 1945, of bronchial pneumonia. He was seventy-four years old, and had been in enforced retirement, owing to poor health, since September, 1943. His death brought to a close a distinguished career in the fields of public health, leprology and dermatology in the Territory of Hawaii over a period of more than fifty years.

Dr. Wayson was born in Port Townsend, Washington, in 1870. His father was an engineer captain in the United States Coast Guard, and it was this circumstance, oddly enough, which eventually led to Dr. Wayson's making his home in Hawaii.

Following his graduation from the University of California Medical School in 1891, and a house physicianship in a Portland, Oregon, hospital, Dr. Wayson entered the United States Revenue Cutter Service as a surgeon. He came thus to Hawaii, after a cruise in Alaskan waters, on November 25, 1894.

He left the Service at this time, and following the revolution, in January, 1895, he accepted a commission as Captain in the Medical Department of the First Regiment of the Hawaii National Guard. In the same year he also became medical superintendent of the Kalihi Leprosarium. He relinquished this post after two years to enter private practice, though he continued to serve the government on a part-time basis. He married Delia Walcott Sheehy of Honolulu, on November 25, 1897, and they have had two children, India and Eleanor, both now married.

Dr. Wayson's career in public health and leprology really began in 1910, when he became for the second time medical superintendent of Kalihi Leprosarium; the following year he also assumed the duties of City and County Physician for Honolulu. In 1915 he left the Leprosarium and in 1918 he exchanged the position of City and County Physician for that of Sanitary Expert with the Board of Health. In 1921 he was promoted to General Health Officer, and in 1921 he became Assistant Administrator of the Board of Health, a position he held until 1931.

In 1931 the control of the Territorial leprosaria at Kalihi and Kalaupapa was removed from the Board of Health and vested in a separate governmental agency, the Territorial Board of Leper Hospital and Settlement. Dr. Wayson became the first Chief Physician for this board, and held this post until his official retirement, in September, 1943. It would be difficult to exaggerate the importance of his accomplishments in the control of leprosy during this period. At the time he assumed office the whole problem of leprosy control was in a turmoil; segregation was highly unpopular, and diagnoses had often been contested, sometimes in court. Little attention was paid to already-diagnosed cases, and scant effort was being made to follow paroled ones. It was in large part owing to Dr. Wayson's efforts, and to those of the first members of the Board, that the "leper" came to be regarded as a "leprous patient" and to be given some measure of sympathy and personal attention instead of the simple confinement that had hitherto been the rule.

Dr. Wayson pioneered in the use of solid carbon dioxide for the treatment of lepromatous nodules. In 1910 he secured two tanks of the gas from Chicago, following Pusey's lead in the use of this material for destruction of tissue, and demonstrated its value in destroying excess lepromatous granulation tissue. His work was reported in the Report of the Territorial Board of Health for 1912.

In 1906, as President of the then Hawaiian Territorial Medical Society, he introduced the since prevailing practice of post-graduate lectures here by inviting Dr. A. W. Morton of San Francisco to visit Honolulu and demonstrate spinal anesthesia, which had never been employed here prior to that time.

Dr. Wayson was a Mason, an Elk, and an Odd Fellow. He belonged to the Honolulu County Medical Society and the Hawaii Territorial Medical Association, and was a Fellow of the American Medical Association. He had belonged to the American Academy of Dermatology and Syphilology since its founding, and was also a member of the Society for Investigative Dermatology and of the Royal Society of Tropical Medicine and Hygiene. He was a charter member and the first president of the Hawaii Dermatological Society. Most of all, he was a kindly, genial, witty, wise practitioner of cutaneous medicine and student of leprosy (he always denied being a "leprologist"), and he will long be remembered, and missed, by his many friends on the mainland and in Hawaii.

HARRY L. ARNOLD, JR., M.D.

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RECENT ACQUISITIONS

By Purchase:

Best, Charles H.: *Physiological basis of medical practice.* 3rd ed. 1943.

Grant, J. C. B.: *An atlas of anatomy.* 1943.

Manson-Bahr, Sir Philip: *Synopsis of tropical medicine.* 1943.

Stokes, J. H.: *Modern clinical syphilology.* 3rd ed. 1944.

From THE CLINIC (subscriptions)

Archives of Opthalmology
Archives of Otolaryngology
Archives of Pathology

From MEDICAL GROUP (missing and duplicate copies)

American Journal of the Medical Sciences
American Journal of Surgery
American Journal of Roentgenology
American Journal of Obstetrics and Gynecology
American Journal of Diseases of Children
American Heart Journal
Annals of Internal Medicine
Annals of Surgery
Archives of Pediatrics
Archives of Surgery
Archives of Internal Medicine
Bulletin of the American College of Surgeons
Digest of Treatment
Human Fertility
Illinois Medical Journal
Journal of Urology
Quarterly Bulletin of Sea View Hospital
Radiography and Clinical Photography
Surgery
Surgery, Gynecology and Obstetrics
United States Naval Medical Bulletin
Western Journal of Surgery

From DR. H. L. ARNOLD, SR.

Medical Classics (complete file)

From DR. F. L. PLEADWELL

Essays in the history of medicine. 1944.

From the University of Iowa

Berg, C. D.: *Laboratory manual of biochemistry.* 6th ed. 1944.

* * *

Following is a partial list of journals with missing copies needed to complete our files. If any doctor has these or others to give the Library, they will be gratefully received. The County Societies of Maui, Kauai and Hawaii are actively interested in building up their journal files, and duplicate copies are always offered to them for selection.

American Heart Journal

1934 v.9, No. 1–4, 6
1935 v.10, No. 1, 2, 4, 5
1936 v.11 & v.12

American Journal of Cancer

1932 v.16, No. 6
1933 v.18, No. 1, 2, 4, 6

American Journal of Clinical Pathology

1937 v.7, No. 6
1939 v.9, No. 5
1940 v.10, No. 1

American Journal of Diseases of Children

1920 v.20, No. 5, 6
1921 v.21, No. 3; v.22, No. 1

American Journal of Digestive Diseases

1942 v.9, No. 10

American Journal of Obstetrics and Gynecology

1931 v.21, No. 3

American Journal of Ophthalmology

1939–1942 v.22–v.25
1943 v.26, No. 2–12

American Journal of Pathology

1926–1934 v.2–v.10
1942 v.18, No. 3–6

American Journal of Psychiatry

1921 v.1, No. 1, 2
1927 v.6, No. 4
1928 v.7, No. 3, 5
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1943 v.99

American Journal of Roentgenology

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1937 v.37, No. 5
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1942 v.47, No. 2, 5

American Journal of Surgery

1932 v.15–v.18
1933 v.19, No. 1, 2; v.20, No. 1. 2; v.21, No. 1–3; v.22, No. 1–3
1935 v.27, No. 1
1940 v.49, No. 1

American Journal of Syphilis

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American Journal of Tropical Medicine

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